

REMARKS

This is a response to the Office Action mailed on February 9, 2007, in this application. Claims 1-22 are presented for examination. Claim 17 is currently amended. No new matter has been added. Individual issues raised in the Office Action are addressed next.

Claim Rejections Under 35 U.S.C. § 112

Claim 17 was rejected under 35 U.S.C. 112 as indefinite. The Examiner pointed out that there was insufficient antecedent basis for the claim term "body frame" in this claim, as there was no previous mention of "body frame," but only of a "body." Accordingly, claim 17 has been amended to delete the word "frame." It is believed that claim 17, as amended, fully complies with Section 112, and that therefore this rejection should be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-5 were rejected under 35 U.S.C. § 102(e) as anticipated by Haynes, et al. (U.S. 6,709,623).

Independent claim 1 recites:

1. An apparatus for producing nanofiber utilizing electrospinning comprising:
 - a supply unit for supplying polymer materials of the liquid state used to produce fibers;
 - a spinning unit having a plurality of spinning nozzles for discharging the polymer materials supplied by the supply unit in a charged filament form;*
 - a collector installed below the spinning unit for piling the charged filament discharged by the spinning unit in a specific thickness; and
 - a control unit charged to have a voltage of same polarity as one of the charged filament and positioned between the spinning unit and the collector for guiding the stream of the charged filament in order to prevent repulsion and dispersion of the charged filaments discharged from each spinning nozzle.*

(Emphasis added.)

While Haynes discloses a type of electrospinning apparatus, Haynes fails to disclose several features of the claimed apparatus. In particular, the present application claims “a spinning unit having a plurality of spinning nozzles for discharging the polymer materials . . . in a charged filament form.” Item 10 of Haynes Fig. 1, which the Examiner identifies with the spinning unit of the present application, is what Haynes calls a “spinplate.” As depicted in Haynes Fig. 1, this plate-shaped object does not have “a plurality of nozzles,” apparently lacking nozzles at all. Further, in the apparatus of Haynes, the filaments 12 are discharged from spinplate 10 in a non-charged form, only receiving an electric charge when they pass electrostatics unit 18. In contrast, in the apparatus claimed in claim 1, the filaments are discharged from the spinning unit “in a charged filament form.”

Further, claim 1 of the present application claims “a control unit charged to have a voltage of same polarity as one of the charged filament . . . for guiding the stream of the charged filament in order to prevent repulsion and dispersion of the charged filaments discharged from each spinning nozzle.” Item 24 of Haynes Fig. 1, which the Examiner identifies with the control unit and Haynes calls a “deflector,” is not “charged to have a voltage of same polarity as one of the charged filaments.” In fact, deflector 24 is charged with a different polarity than the filaments, as is evident from Fig. 1, showing the filaments being deflected toward (attracted to) deflector 24. This reflects the fact that, in the apparatus claimed in claim 1, the control unit has the purpose of electrostatically preventing the dispersion of charged filaments, while the deflector of Haynes has the purpose of deflecting or orienting the filaments.

Because Haynes fails to disclose or even suggest all the elements of claim 1, Haynes cannot anticipate claim 1. Accordingly, the rejection of claim 1 should be withdrawn. As claims 2-5 are dependent claims dependent on claim 1, the rejections of these claims should also be withdrawn, for at least this reason.

Claims 11, 14, 17 and 19 were rejected under 35 U.S.C. § 102(e) as anticipated by Kim (U.S. 6,991,702).

Independent claim 11 recites:

11 A spinning nozzle pack for forming a polymer web by electrostatically spinning a solution used as fiber-forming material, comprising:
a body having a supplier for supplying the solution and a receiver for receiving the supplied solution;
an electric connector mounted on the body to be sunk in

the solution for charging the solution when voltage is supplied thereto; and

a plurality of spinning nozzles, each having a capillary tube for discharging the solution charged by the electric connector in a fine filament form.

(Emphasis added.)

While Kim discloses a “nozzle block” in an electrospinning apparatus, Kim fails to disclose or teach several of the features of the nozzle pack claimed in claim 11. In general, Kim discloses very little structural detail of its “nozzle block,” which appears in the figures of Kim as little more than a horizontal line or bar with some vertical lines (evidently nozzles) depending from it. Item 1 of Kim, which the Examiner identifies with the “body” of claim 11, is in fact not part of the nozzle block at all, but is rather a separate “main tank” somewhat analogous to storage container 112 of the present application. Item 3 of Kim, which the Examiner identifies with the “receiver of claim 11, is again a separate component, called by Kim a “spinning dope drop device,” and appears to be a kind of nozzle for delivering dope. Again, item 5 of Kim, which the Examiner identifies with the electric connector of claim 11, is not “mounted on the body to be sunk in the solution,” as is the electric connector of claim 11, but rather is a component separate from nozzle block 4, as is evident from Figs. 1, 2, and 3 and accompanying description.

Because Kim fails to disclose or event suggest all the elements of claim 11, Kim cannot anticipate claim 11. Accordingly, the rejection of claim 11 should be withdrawn. As claims 14, 17, and 19 are dependent claims dependent on claim 11, the rejections of these claims should also be withdrawn, for at least this reason.

Claim Rejections under 35 U.S.C. § 103

Claims 6-10, 12-13, 15-16, and 20-22 were rejected under 35 U.S.C. § 103(a) as obvious over various combinations of Haynes and Kim, along with James (U.S. 7,018,188), Kaun (U.S. 5,435,708), Wnuk (U.S. 6,604,928), and Lu (U.S. 6,183,684). As claims 6-10 are dependent claims depending from claim 1, and claims 12-13, 15-16, and 20-22 are dependent claims depending from claim 11, the rejections of these claims should be withdrawn, for at least this reason.

Conclusion

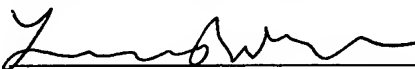
In view of the above, applicants respectfully submit that the present application is in condition for allowance. A favorable disposition to that effect is respectfully requested.

No fee is believed to be due for this submission. In the event a fee is required please charge such a fee to Jones Day Deposit Account No. 50-3013.

Should the Examiner have any questions or comments concerning this submission, he is invited to call the undersigned at the phone number listed below.

Date: May 9, 2007

Respectfully submitted,



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